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Chapter 1. THE AVN FLIGHT PROCEDURES OFFICE PROGRAM AND RESPONSIBILITY

100. ORGANIZATION

Each Flight Procedures Office (FPO) is located in one of nine Federal Aviation Administration (FAA) regional offices (RO). Each office reports to the manager of one of five geographically separated Flight Procedures Development Branches, located in Oklahoma City, OK. These branches report to the manager of the National Flight Procedures Office, AVN-100, also in Oklahoma City.

101. FPO RESPONSIBILITIES

The FPO is comprised of Airspace Program Evaluation Specialists, usually at Grade GS-14. One of these specialists is assigned as Program Manager, and acts as lead specialist. These specialists have technical knowledge and skills in instrument procedure development, including instrument approach procedures (IAP), en-route procedures, and all-weather terminal operations. Most have experience in procedure development and many have experience as Aviation System Inspection Pilots (ASIP). As an AVN representative to the regional office (RO), the FPO specialist must be familiar with other RO areas of expertise, including Airports, Air Traffic, Flight Standards and Airway Facilities Divisions. The FPO accomplishes its primary core responsibilities, which are, overall management of the regions instrument flight procedures mission, and support of regional programs by accomplishing obstruction evaluations (OE), airport airspace analyses (AAA), and facilities and equipment (F&E) NAVAID and visual landing aid evaluations. The FPO has additional responsibilities and subsequent chapters will discuss these functions.

Detailed information may be found in the following FAA Orders:
Terminal procedure development is discussed in Orders 8260.3, United States Standard for Terminal

Instrument Procedures (TERPS), and 8260.19, Flight Procedures and Airspace; obstructions evaluation and airspace analysis are described in order 7400.2, Procedures for Handling Airspace Matters, and the facilities and equipment NAVAIDS/visual landing aids evaluation is discussed in Order 7031.2, Airway Planning Standard Number One - Terminal Air Navigation Facilities and Air Traffic Control Services. Additional responsibilities related to development and maintenance of the National Airspace System (NAS) are listed in subparagraph c, below.

a. Coordination

To accomplish these functions, the FPO must directly interface with other regional divisions, aviation users, industry groups and foreign nations. National program policy guidance is provided by the Flight Technologies and Procedures Division, AFS-400, primarily through the Flight Procedures Standards Branch, AFS-420.

b. Flight Procedures

At the regional level, the FPO has overall responsibility for the flight procedures program. The FPO determines whether or not terminal instrument procedures and facilities are required, requests procedure development by the appropriate AVN-100 Flight Procedures Development Branch, assures published procedures incorporate upcoming and recent changes in their region, and determines whether or not terminal procedures are canceled.

1.Procedure Authorization

The FPO may generate the need for terminal procedures within the region or receive a request for a procedure. Instrument procedure authorization may be based on an existing navigation aid or based on establishing a new facility through either the F&E program or the non-federal (non-fed) navigation aid program (FAR Part 171, Navigational Facilities), or based on NAVAIDs acquired through the Airport Improvement Program (AIP). The FPO also processes requests by Flight Standards for special procedures for use by a specific individual or group. Additionally, the FPO becomes involved with and is instrumental in the successful introduction of new procedural concepts, navigation systems, and landing technologies such as simultaneous converging instrument approaches, closely spaced parallel runway, approaches, curved approaches, long range navigation (LORAN-C), Global Positioning System (GPS), and microwave landing system (MLS).

2.Procedure Maintenance

Once a terminal or enroute procedure is published, it is the responsibility of the FPO to maintain the safety and integrity of that procedure. The Obstruction Evaluation and Airport Airspace Analysis Programs (OE/AAA) have a major impact on the maintenance and modification of all procedures. OE/AAA analyses are conducted by the FPO in response to the dynamic growth present in today's commerce and aviation sectors. Through these programs, AVN, along with Flight Standards, Air Traffic, Airway Facilities, and Airports administer the safe and efficient growth of the NAS.

Airport studies are conducted by the FPO in support of these programs and cover a wide variety of airport proposals including environmental reviews, airport/heliport design and construction, and airport capacity. Other input, such as user complaints, programmed facility shutdown, and industry recommendations are analyzed by the FPO in a continuing effort to maintain or enhance the NAS.

3.Efficiency Evaluations

Maintenance of terminal procedures includes the responsibility to determine the efficiency of terminal operations; that is, the cost to the government cannot exceed the benefit of the service. The FPO is responsible for making many of these technical determinations and authorizing cancellation of instrument procedures as necessary.

4.Other Related Responsibilities

Additional FPO program responsibilities include, but are not limited to the following tasks:

- Responds to Freedom of Information Act (FOIA) requests.
- Conducts presentations and attends meetings within the regional office and throughout the region to promote and explain upcoming technologies and to represent AVN.
- Responds to public inquiries.
- Conducts environmental reviews.
- Initiates flight procedure waivers.
- Reviews proposed changes to orders, notices, or advisory circulars.

5.FPO Public Relations

The FPO is in the unique position of being the only AVN office located with the regional office. As such, AVNs image (as well as that of the FAA) is defined by the AVN employees attitude and demeanor when dealing with other FAA, local or federal government offices, congressional offices, foreign government officials, airport authorities, and users.

Due to the high visibility of the FPO, the specialist must always be aware that he or she is an ambassador for AVN and the FAA. In spite of high workloads normally existing in the FPO, specialists must at all times remain tactful, friendly, diplomatic and highly professional when dealing with its customers.

The FPO specialist, over time, gains a wide area of knowledge through its dealings with other divisions and offices and has the opportunity to be a reservoir of information for a variety of customers. As a result, many customers consider the FPO a good starting point for questions concerning a varied aviation subject matter. The FPO specialist should

avoid sending customers through the telephone merry-go-round. Where possible, the FPO specialist should take the position that the FPO has the ability to respond to many different types of inquiries, and to be as helpful and professional as this high visibility position demands.

102. BACKGROUND AND REGULATORY AUTHORITY

The Federal Aviation Act of 1958 (FA Act) (which has since been re-codified as 49 U.S.C § 4001 et seq) and subsequent amendments, legislates the FAA's responsibility for maintaining a safe National Airspace System (NAS). For ease of reference, the term FA Act will be used in this handbook.

a. Statutory basis for Obstruction Evaluations

One portion of this responsibility concerns Objects Affecting Navigable Airspace which is the title of FAR Part 77. Through this regulation and internal directives, the FAA complies with the FA Act and evaluates objects that may have an effect on navigable airspace.

1.FAA ACT of 1958

Section 104, Public Right of Transit

Contains a recognition and declaration of the public right of freedom of transit through the navigable airspace of the United States.

Section 307, Airspace Control and Facilities

Authorizes and directs the Administrator to develop plans for and formulate policy with respect to the use of the navigable airspace; and assign the use of the navigable airspace under such terms, conditions, and limitations as he may deem necessary in order to ensure the safety of aircraft and the efficient utilization of such airspace.

Section 313, Other Powers and Duties of the Administrator

This Section empowers the Administrator to conduct investigations, issue and amend general or special rules, regulations and procedures pursuant to and consistent with the provisions of the Act. This is to be accomplished as necessary to carry out the provisions of the Act, and to exercise and perform the powers and duties under the Act.

Section 1001, Conduct of Proceedings

Authorizes the Administrator to conduct his proceedings in such a manner as will be conducive to the proper dispatch of business and to the ends of

justice, subject to the provisions of the FA Act and the Administrative Procedures Act.

Section 1101, Hazards to Air Commerce

Directs the Administrator to require all persons to give public notice of construction or alteration, or of the proposed construction or alteration, of any structure where notice will promote safety in Air Commerce.

2. Airport and Airway Improvement Act of 1982

Section 505, Airport Improvement Program

Authorizes the FAA, through the Secretary of the Department of Transportation, to make grants of funds for airport/heliport development and planning.

Section 509, Submission and approval of Project Grant

Applications

Authorizes the establishment of standards for, among other things, airport design and safety of approaches.

Section 511, Project Sponsorship

Authorizes the requiring of assurances in writing that the aerial approaches to the airport will be adequately cleared and protected. This is accomplished by removing, lowering, relocating, marking or lighting, or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards and the requiring of assurances in writing that appropriate action, including the adoption of zoning laws, has been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operation, including landing and takeoff of aircraft.

3. Court Decisions and the Statutes

Occasionally, the FAA is taken to federal court based on an individual OE case determination. The case is argued before a federal judge to determine if the FAA was "arbitrary and capricious" in its determination. The court will consider if the determination was based on internal FAA guidance, the FARs, and the laws. A court's decision against the FAA normally will stress deficiencies in the FAA's internal guidance, procedures, or the FARs, but may even further define the extent or limits of the law.

4.Overview of the Statutes

Many people mistakenly believe that the FAA has the authority to limit the height of structures or prohibit construction if it affects navigable airspace or air commerce. A review of the pertinent parts of the laws shows that there is no specific authorization for federal regulations that would limit structure heights, prohibit construction, or even require structures to be obstruction marked and lighted. Congress chose to withhold that authority. Since this authority would involve federal zoning regulations and due process actions, including the taking of property and the paying of compensation, the statutes left the matter in the hands of the landowners and state and local authorities.

- The FAA's obstruction evaluation program is to a great extent dependent upon the cooperation of construction sponsors, zoning authorities, government agencies, and others who have a function or responsibility relating to planning, approving, or constructing buildings and other structures. Much of the program's success is traceable to the efforts of persons engaged in these activities to conform to the FAA obstruction standards at the outset of construction planning.
- No judicial decision has been issued on the extent to which ground structures may constitute an unlawful interference with the public freedom of transit through the navigable airspace recognized in the FA Act. Until authoritative guidance is received or express legislative authority is conferred on that point, the agency actions in the field of ground hazards to air navigation will be limited to the areas presently covered in FAR Part 77.

103. REGULATORY BASIS FOR OBSTRUCTION EVALUATIONS

By adoption of FAR Part 77.1, the Administrator implemented the provision of the FA Act to accomplish the following:

- Require all persons to give public notice of proposed construction or alteration of any structure where notice will promote safety in air commerce; and:
- Provide the agency with the means of exercising the powers and authority vested in him with respect to actions related thereto to ensure the safety of aircraft and the efficient utilization of navigable airspace.

a. Adopted Measures

- Establishing requirements and standards for notice to the Administrator of proposed construction or alteration.
- Establishing standards for determining obstructions to air navigation.
- Providing for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace.
- Providing for public hearings and other review on the hazardous effect of proposed construction or alteration on air navigation.
- Publishing recommendations for the marking and lighting of obstructions to air navigation.

b. Notice Requirements

The requirements for giving notice to the Administrator of proposed construction or alteration appear in Subpart B of FAR Part 77. The requirements for notice are authoritative and there is a penalty, as specified on FAA Form 7460-1, Notice of Proposed Construction or Alteration, for failure to comply.

- Notice standards are established to provide construction sponsors with guidelines for determining whether their construction or alteration requires notice to the FAA. Since principally the non-aeronautically orientated public uses the standards, they are designed to be simple and easy to apply. To determine if notice is required a person needs only to know if the overall height of the proposed structure at its site would exceed 200 feet above ground, and if less than 200 feet, whether the structure will exceed an airport slope of 100:1, 50:1, or 25:1. The guidelines are specified in the notice standards and in Advisory Circular 70/7460-2, Proposed Construction or Alteration of Objects That May Affect the Navigable Airspace, and are applied to the nearest airport/heliport listed in the Airport/Facility Directory and appropriate Alaska and Pacific supplements.
- Some notices submitted to the FAA do not actually exceed the FAR standards for giving notice. However, since the notice standards do not cover all possibilities which might be of interest to the FAA, normally all notices received are processed for evaluation.

c. Obstruction Standards

Standards for determining obstructions to air navigation appear in Subpart C of Part 77.

- The Regulations state that only public use airports, planned public use airports, and military airports are afforded protection under FAR Part 77.
- The obstruction standards are different than those for giving notice. In most, BUT NOT ALL cases, the obstruction standards are less restrictive than the notice requirements. An exception is the construction of an obstruction under 200 feet AGL and below the 100:1 surface, which will have an effect on an instrument approach minimum altitude, thus exceeding FAR Part 77.23(a)(3).
- The obstruction standards have several functions. The most important is to identify ground structures that could affect air navigation. If a proposed obstacle does not penetrate one of these established obstruction standards, then it is not an obstruction to air navigation. FAA requests for public comment on proposals and the petitioning process for determinations are only for those proposed structures that exceed an obstruction standard.
- If a proposed obstacle penetrates one of these established obstruction standards, then by definition, it is an obstruction to air navigation.
- Some of the FAR Part 77 obstruction standards are relatively simple numerical standards associated with the common airspace requirements of airports, heliports, and seaplane bases. Known as Civil Airport Imaginary Surfaces or "Part 77 Surfaces", they are similar to the notice standards with specific values assigned to all surfaces. These standards indirectly serve as guidelines in airport design and in airport zoning. It is these standards that protect the airspace needed in aeronautical operations from intrusion by obstructions.
- Other portions of FAR Part 77 obstruction standards are the relatively complex standards associated with the airspace requirements of airways, off-airway routes, all terminal operations and procedures, and VFR operations. These standards, although referred to in the FARs, are defined in appropriate FAA directives.
- In addition to being used to identify obstructions, obstruction standards are used in administering the Airport Improvement Program (AIP), developing technical standards and guidance in the design and construction of airports/heliports, deciding which structures should be marked and lighted, and determining which obstructions should be

depicted on aeronautical charts to warn pilots of their presence.

- All structures, which exceed FAA obstruction standards, are obstructions. These obstructions may or may not be hazards to air navigation. An aeronautical study is used to determine if an obstruction is or is not a hazard.

d. The Aeronautical Study

"Aeronautical Study" is the name given to the procedures established in Subpart D of FAR Part 77 for studying and evaluating proposed structures affecting navigable airspace. These procedures provide the forum and the means by which the agency gives full and equal consideration to the interests of the construction sponsor and to the public interest of safe air commerce and the efficient use of navigable airspace.

- The aeronautical studies are fact-finding in nature. Therefore, those considerations given significant weight in the studies are those based on fact. Suppositions, guesses, opinions, and other intangible matters, although considered, are given little weight.
- All obstructions are presumed to be hazards until the aeronautical study determines otherwise. The aeronautical study evaluates such factors as the number of aircraft operations, aircraft operational capabilities, electronic and procedural requirements, and airport/heliport standards.
- When deemed necessary by the FAA to gather facts, an informal airspace meeting of aeronautical persons/organizations may be convened. Effects on future aeronautical operations and procedures may be considered. Plans for such future operations and procedures may either be known by the FAA, on file with the FAA, or surface as a result of the OE process.
- When substantial argument against or objection to the proposal is received, or the agency's own evaluation shows substantial adverse effects, a meeting may be held with the construction sponsor to explore possible changes in the construction proposal that would eliminate or alleviate the conflicting demands for airspace.

e. Determinations

Whereas there are standards with specific, assigned values for giving notice and for identifying obstructions, there are no similar criteria-type standards established for determining hazards to air navigation.

- In the absence of established standards for determining hazards, each determination represents a judgement decision

based on the best factual information that can be obtained during an aeronautical study of the effects of the proposed structure upon the safe, efficient utilization of navigable airspace and on air navigation facilities.

- When the total adverse effect is found to be substantial, the proposed structure is determined to be a hazard. Otherwise, it is determined to be a no hazard. Thus, a determination is made only after a full and complete study has been conducted and all facts relevant to the structure's effect on aviation have been thoroughly evaluated. The determination is given to the construction sponsor and copies are distributed to all known interested parties.

f. Reviews

- An aeronautical study may continue beyond the issuance of an initial determination because Subpart D of FAR Part 77 provides for review of these determinations.
- The sponsor of any proposed construction, any person who stated a substantial aeronautical objection to it in an aeronautical study, or any person who has a substantial aeronautical objection to it but was not given an opportunity to so state, may, within 30 days after issuance of a determination, petition the Administrator for a review. If there are valid grounds for a review, the petition is granted and a review is conducted.
- FAR Part 77 procedures provide that a review may be on the basis of either written materials or a public hearing. A review on the basis of written materials is essentially a review of the case records, whereas a review on the basis of a public hearing involves additional fact-finding. In either case, the objective of any review is the same as in the preliminary study, that is to determine the effect of the proposed construction on the operation of air navigation facilities and the safe and efficient use of navigable airspace. Final determinations are issued at the close of a review and copies are provided to all interested parties.
- Final determinations are advisory opinions issued to all concerned parties. The determination is relative to the agency's finding on the hazardous effect of the proposed construction on air navigation.

g. Overview of the Regulations

By requiring notice prior to construction for structures that may affect air navigation, the FAA is given an opportunity to study, evaluate, and resolve problems that could be caused by the construction of the structure. The FAA's role as the airspace use expert, coordinator, and arbitrator is effective and the integrity of the navigable airspace is maintained at a high

level. The obstruction evaluation program and the issuance of hazard or no hazard determinations have proven to be an effective method of dealing with ground structures over which the agency actually has no authoritative control.

- A determination of "no hazard" specifically means that the obstruction would not have a substantial adverse effect on air navigation as determined by the FAA's aeronautical study. This determination does not necessarily mean that the obstruction, when built, has no effect on operational and instrument procedures. Consequently, when the sponsor is notified of the determination by the region, FAR Part 77 requires supplemental notices by the sponsor to the FAA prior to beginning actual construction and prior to the structure reaching its greatest height. These notices are required to insure timely completion of FAA actions needed for maintaining safe aeronautical operations.
- Of the thousands of cases studied in the OE program, few structures have been constructed after the FAA determined the proposal to be hazardous. When a structure is built against the FAA's advice that it would be a hazard to air navigation, the agency takes appropriate action to ensure continued safety of aircraft operations and procedures. That action may be to increase an established minimum instrument flight altitude, modify an established instrument approach procedure, require a restriction on instrument departures, or other necessary adjustment of procedures or operations to maintain an acceptable level of safety. In addition, appropriate cautionary notices and information may be published on aeronautical charts and in other publications to warn pilots of the hazardous condition.
- Even though the FAA has no legal or regulatory authority to restrict construction of hazardous structures, the FAA determination does directly and indirectly affect a proponent's decision to build such structures.
- When a structure is under the control of an airport authority having a grant agreement with the FAA under the provisions of the Airport and Airway Improvement Act, penalties may be imposed or federal funds for airport improvement withheld pending compliance with agreements for keeping airport approaches clear of hazards. These actions by the FAA will pressure the airport authority to take whatever steps necessary to mitigate the hazardous structures.
- The Federal Communications Commission (FCC) has licensing authority concerning proposed construction of radio,

television, microwave relay, or other broadcasting facilities and also issues construction permits for the appropriate structures. The FCC requires an FAA determination and agrees that structures hazardous to air navigation should not be built or operated.

- Insurability and associated costs may be a deterrent to construction. The FAA has no control over insurance rates; however, extremely high operating costs and the legal responsibilities associated with these types of structures are a deterrent to construction.

104. OTHER CONSIDERATIONS CONCERNING THE STATUTES AND THE REGULATIONS

Congress has established the laws and the FAA has issued the FAR. The procedures for accomplishing the OE program are incorporated in the FAA's internal orders. The OE program is an integral part of and interrelated with nearly everything for which the FAA has responsibility. This includes the AIP program, the Airspace program, obstacle clearance requirements, capacity restriction problems, aircraft safety, aircraft performance, protecting navigable airspace, and promoting air commerce.

a. Past Benefits

Administration of the OE program has required the FAA to take action in related areas of responsibility to provide broad guidance imposed by the statutes. The following are examples and situations relative to obstruction evaluations.

1. Airport/Heliport Design Standards

The FAA has the responsibility to develop airport/heliport design standards. Such standards are normally issued in the form of advisory circulars.

- Advisory circulars on airport/heliport design define criteria, which the airport/heliport owner may use to ensure protection of the airspace needed for the airport/heliport now and in the future. The FAA coordinates these standards with the international community through the International Civil Aviation Organization (ICAO).
- The airport/heliport design criteria emphasize runway obstacle protection especially in the innermost portion of the approach and departure areas. Local agencies are required to adopt these criteria if the airport/heliport is developed under the Airport Improvement Program (AIP). The intent of the criteria, especially in conjunction with AIP funds, is that obstructions near the airport/heliport will be prevented.

- (3) Airport management prepares an approach and clear zone plan in accordance with obstruction standards in FAR Part 77. Such a plan outlines the area surrounding an airport/heliport to be protected from tall structures or other objects. More detailed information on the imaginary surfaces can be found in FAR Part 77 and Order 7400.2. These imaginary surfaces are important because the underlying area determines the boundaries for land use planning for the airport.
- Airport management is responsible for ensuring that the height restriction ordinances adopted by the local jurisdiction is in agreement with the FAR Part 77 imaginary surfaces. Thus, if an airport owner wishes to protect the airport from obstructions, close coordination is required with the local zoning jurisdiction to assure that a local height restriction ordinance is adopted and enforced. AC 150/5190-4, A Model Zoning Ordinance to Limit Heights of Objects Around Airports, dated 1988, provides model ordinances for different types of airports.

2.Obstruction Marking and Lighting

The statutes do not contain a basis for the mandatory marking and lighting of structures to warn pilots of their presence. Therefore, guidelines on how to mark and light structures to provide the minimum necessary conspicuity have been provided in AC 70/7460-1, Obstruction Marking and Lighting. The basis is contained in FAR 77.11 (b)(3). After an aeronautical study is completed and the FAA recommends that the structure be obstruction marked and lighted, the public can use the AC for FAA's recommended standard. The AC is free of charge.

- While compliance with the standards in AC 70/7460-1 for marking and lighting of obstructions is not mandatory, it is usually to the mutual benefit of both the property owners and aeronautical interests. As an example, non-compliance could mean the determination the FAA has issued is now invalid. In total, the vast majority of obstructions to air navigation are marked and lighted, including all radio and television transmitting towers over which the FCC has authority and requires compliance when it is a condition of an OE determination of "no hazard".

- In certain situations, less than minimum marking and lighting, as defined by the AC, may be found acceptable but only after a special aeronautical study has been made to determine that such action would not result in the creation of a hazard to air navigation.

3.Aeronautical Study of Existing Obstacles

Aeronautical studies of existing objects are conducted under the authority of Sections 307(a) and 313(a) of the FA Act of 1958, as amended. A notice received under FAR Part 77 for proposed construction or alteration that has already been started is considered an existing object.

- As a practical matter, there are few differences between the way an existing obstacle is studied and the way a proposed obstacle is evaluated. The differences lie in how the case is administratively handled.
- Determinations or recommendations concerning existing objects are not subject to review under the provisions of FAR Part 77. Petitions or requests for review are granted or denied at the discretion of the Regional Administrator. Should a review be granted, it is processed outside the regulatory framework of FAR Part 77.

b. Section Summary

This section of the handbook covers the underlying laws, in association with the FAR, dealing with objects affecting navigable airspace. Pertinent points must be emphasized and are listed below.

- While the FAA has no authority to deny or restrict construction or alteration of any ground structures, the FAA does have the authority to require prior notification for the construction or alteration of structures. Notification standards are specified in FAR Section 77.13.
- The FAA has established standards for determining obstructions to air navigation. These standards are specified in FAR Part 77, Subpart C.
- Obstructions to air navigation may or may not be determined to be hazardous.

- The FAA conducts aeronautical studies on the proposed construction or alteration of structures to determine the effects upon the operation of air navigation facilities and the safe and efficient utilization of navigable airspace.
- Upon completion of the aeronautical study, the FAA issues a determination of hazard or no hazard.
- For a hazard determination, the aeronautical study must find that the construction would have a SUBSTANTIAL ADVERSE EFFECT on the safe and efficient utilization of the navigable airspace or on the operation of air navigation facilities.
- The FAA has no authority to require obstructions to be marked and lighted. However, FAA recommends obstruction marking and lighting as provided in AC 70/7460-1.

c. Changes

Congress has and will change the laws and the FAA will update the FAR in response to changing legislative, judicial, and executive dictates. New technologies and airport capacity enhancements will also require changes to the FAR and the FAA's internal directives. Changes will directly or indirectly effect the region's OE program.